

# PATENT SPECIFICATION

NO DRAWINGS

**863,106**

Date of Application and filing Complete Specification Oct. 14, 1958.  
No. 32496/60.

Application made in United States of America on Oct. 31, 1957.  
(Divided out of No. 863,105).

Complete Specification Published March 15, 1961.

Index at acceptance:—Class 99(2), P1(A18B:B3:B7:B8), P2C7.

International Classification:—F06L.

## COMPLETE SPECIFICATION

### Method of Making Synthetic Plastic Hose Pipes

We, TITEFLEX INC. a Corporation organised and existing under the Laws of the Commonwealth of Massachusetts, United States of America, of Hendee Street, Springfield, Massachusetts, United States of America, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to the manufacture of synthetic plastic hose pipe by wrapping on a mandrel a helix of plastic strip material which is subjected to a high temperature heat treatment as one step of the process of manufacture and in which a foil layer is interposed between the mandrel and the strip.

The expression "heat treatment" is used herein as a generic expression to designate any treatment of the plastic by heat to bring it to a desired final condition such for example as curing, fusing or sintering.

In accordance with the present invention the foil layer is lubricated to facilitate stripping from the mandrel by maintaining a coating of plastic between the mandrel and the foil.

From another aspect, the invention provides, in the manufacture of plastic hose by wrapping on a mandrel a helix of plastic strip material which is subjected to high temperature treatment as one step of the process of manufacture, the steps of wrapping a layer of foil on the mandrel ahead of the plastic strip material whereby a foil layer is interposed between the mandrel and the strip and lubricating the foil to facilitate stripping from the mandrel by maintaining a coating of plastic material on the mandrel side of the foil as said foil is wrapped on the mandrel.

The hose is preferably made of polytetrafluoroethylene manufactured by E. I. Du Pont de Nemours of Wilmington, Delaware under the Registered Trade Mark

[Price 3s. 6d.]

"Teflon" and a coating of this material is maintained between the mandrel and the foil. The foil may for example carry a coating of "Teflon" on the surface of the foil that contacts with the mandrel.

Other features of the invention are embodied in the preferred form which will now be described in some detail by way of example.

In this form, a plastic hose is made substantially in the manner described in our co-pending Application No. 32840/58. A strip of aluminium foil is initially wrapped on a mandrel from a reel with the edge portion of each convolution overlapping a portion of the next convolution. Although aluminium foil is preferred other metal foil can be used such as copper or other malleable foil. The mandrel may be rotated or the strip can be wrapped by moving the reel with an orbital movement around a stationary mandrel.

A light film of plastic, such as "Teflon" is coated on the side of the foil strip that contacts the mandrel and this plastic serves as a solid lubricant to facilitate eventual stripping of the foil strip from the mandrel.

A strip of "Teflon" tape is wrapped over the inner layer formed by the foil and a further composite strip of woven fibreglass fabric impregnated with "Teflon" is wound over the "Teflon" line and the hose is then corrugated in a known manner.

After being corrugated the hose is given a heat treatment to bring the plastic to the desired final condition. In the case of "Teflon" the hose is subjected to a sintering temperature above 620° F. The metal foil is then removed by any convenient process.

#### WHAT WE CLAIM IS:—

1. In the manufacture of synthetic plastic hose pipe by wrapping on a mandrel a helix of plastic strip material which is subjected to high temperature treatment as one step of the process of manufacture and in which a

layer of foil is interposed between the mandrel and the strip, lubricating the foil to facilitate stripping from the mandrel by maintaining a coating of plastic between the mandrel and the foil.

- 5 2. In the manufacture of synthetic plastic hose pipe by wrapping on a mandrel a helix of plastic strip material which is subjected to high temperature treatment as one step of  
10 the process of manufacture, wrapping a layer of foil on the mandrel ahead of the plastic strip material whereby a foil layer is interposed between the mandrel and the strip and lubricating the foil to facilitate stripping  
15 from the mandrel by maintaining a coating of

plastic material on the mandrel side of the foil as said foil is wrapped on the mandrel.

3. The manufacture of synthetic plastic hose pipe as described in Claim 2 in which the hose is made by wrapping polytetrafluoroethylene strip on the mandrel over the foil and the foil is lubricated by a thin coating of polytetrafluoroethylene on the surface of the foil that contacts with the mandrel. 20

ANDREWS & BYRNE,  
Agents for the Applicants,  
201, Bank Chambers,  
329, High Holborn,  
London, W.C.1.

Leamington Spa: Printed for Her Majesty's Stationery Office, by the Courier Press.—1961  
Published at the Patent Office, 25, Southampton Buildings, London, W.C.2, from which copies may be obtained